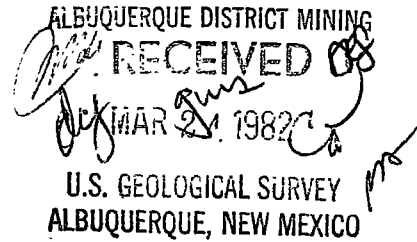


ANACONDA Minerals Company
New Mexico Operations
P.O. Box 638
Grants, New Mexico 87020
Telephone 505 876 2211



March 8, 1982

Mr. Dale C. Jones
District Mining Supervisor
U. S. Dept. of the Interior
500 Gold Avenue, S.W.
Albuquerque, N. M. 87102



Dear Mr. Jones:

Enclosed are two copies of the Annual Reclamation Report on mining activities of the Anaconda Minerals Company; New Mexico Operations on the Laguna Pueblo for the calendar year 1981. This report is required by 25 CFR 177.9.

Many of the points regarding remaining reclamation and associated topics are contained in the current Reclamation Plan which will be submitted soon, pending activities and approval by MMS. This report describes those activities which transpired during calendar year 1981.

I appreciate your patience regarding this report, as we committed our manpower to the preparation of the revised Reclamation Plan.

If you have any questions on this submittal, please call me.

Sincerely,

Dean L. Roberts

Dean L. Roberts
Chief Environmental Engineer

mls

Enclosures

cc: R. D. Lynn
M. A. Stirland
C. E. Sanchez
File

ANACONDA MINERALS COMPANY

ANNUAL RECLAMATION REPORT

FOR 1981

INTRODUCTION:

The following report is a summary of the success analysis carried out on the previously reclaimed sites at the Jackpile Mine. In accordance with the USGS (now Materials Management Service) requests, no additional reclamation projects were begun or completed during calendar year 1981. This included topsoiling, surface work, seeding and mulching.

RECLAMATION SCHEDULE:

No formal schedule of reclamation activities can be made at this time. Future reclamation activities are dependent upon approval of the reclamation plan by the appropriate regulatory agencies. When a final plan is accepted by all parties involved, a schedule of activities will be formulated and submitted.

DRILL HOLE RECLAMATION 1981:

Drill hole plugging continued throughout 1981 on the Jackpile-Paguate Mine Lease. As in the past, each hole found was plugged with concrete to a depth of five (5) feet, as measured from the hole collar. Each plug has an enlarged cap at the collar of the hole. During 1981, a total of 481 exploration drill holes were plugged on the lease property.

SUCCESS ANALYSIS 1981:

The vegetation success analysis program consists of basal cover evaluation, botanical composition and plant density. Basal cover and botanical composition are obtained by the line intercept method. The plant density values were obtained using the frame method, with an area of one square meter. All measurements were taken at random locations and may vary somewhat from year to year.

Vegetation analysis control sites are set up on rangeland areas around the Jackpile-Paguate Mine. These sites are used for comparison of success rates on reclaimed areas to undisturbed rangeland.

In reviewing the enclosed data, care must be taken in evaluating reclaimed dumps L and K. Both sites had extremely high numbers of annual forbs when the success analysis was determined. This high number would lead to an indication of greater success than is being actually achieved with the perennial species.

Dumps C, D, E, F and G had basal cover between 71% and 89% of that found on the control sites. Dumps O, P, P₁ and P₂ had basal cover which averaged 78% of the control site. Dumps X, I and Y₂ had 85% of the basal cover found at the control sites. The trend appeared upward on all sites. A comparison table of success rates is included with this report.

FUTURE SUCCESS MONITORING

Success analysis will continue on those sites requiring additional data to confirm the success of the reclamation efforts. This will be done in accordance with the schedule as outlined in the revised Reclamation Plan pending approval by the MMS.

DLR:mls

VEGETATION SUCCESS ANALYSIS
DUMPS C, D, E

Date Reclaimed: Summer 1977
Date of Analysis: September, 1981

Common Name	Scientific Name	Total Cover (cm)	Botanical Composition %	Basal Area Cover %	Density Plants/M ²
* Blue grama	Bouteloua gracilis	335	27.85	1.22	3.67
* Crested wheatgrass	Agropyron cristatum	117	9.73	0.43	1.00
* Alkali sacaton	Sporobolus airoides	35	2.91	0.13	0.55
* Indian ricegrass	Oryzopsis hymenoides	227	18.87	0.83	1.67
* Weeping lovegrass	Eragrostis curvula	42	3.49	0.15	---
* Galleta	Hilaria jamesii	23	1.91	0.08	0.22
* Clover (yellow & white)	Melilotus spp.	96	7.98	0.35	8.00
* Fourwing saltbush	Atriplex canescens	170	14.13	0.62	4.22
Annual forbs		52	4.32	0.19	34.78
Red threeawn	Aristida longiseta	41	3.41	0.15	1.44
Bottlebrush	Sitanion hystrix	6	0.50	0.02	---
Winterfat	Ceratoides lanata	3	0.25	0.01	---
New Mexico Feathergrass	Stipa neomexicana	30	2.49	0.11	0.11
Perennial forbs		20	1.66	0.07	---
Broom snakeweed	Xanthocephalum sarothrae	6	0.50	0.02	---
TOTAL		1203	100.00 %	4.38 %	55.66

Note: Cover values based on 9 line transects, 30.5 meters (100 ft.) each.
Density values based on 9 quadrats of 1 square meter each.

*Species planted 1977

VEGETATION SUCCESS ANALYSIS
DUMPS F, G

Date Reclaimed: Summer, 1977
Date of Analysis: September, 1981

<u>Common Name</u>	<u>Scientific Name</u>	<u>Total Cover (cm)</u>	<u>Botanical Composition %</u>	<u>Basal Area Cover %</u>	<u>Density Plants/M²</u>
* Blue grama	Bouteloua gracilis	542	54.14	2.96	7.17
* Sideoats grama	Bouteloua curtipendula	71	7.09	0.39	1.17
* Indian ricegrass	Oryzopsis hymenoides	24	2.40	0.13	0.34
* Crested wheatgrass	Agropyron cristatum	89	8.89	0.49	1.67
* Alkali sacaton	Sporobolus airoides	115	11.49	0.63	0.17
* Sand dropseed	Sporobolus cryptandrus	4	0.40	0.02	----
* Weeping lovegrass	Eragrostis curvula	---	---	---	0.17
* Fourwing saltbush	Atriplex canescens	121	12.09	0.66	4.17
Annual forbs		35	3.50	0.17	54.66
Snakeweed	Xanthocephalum sarothrae	---	---	---	0.33
<hr/> TOTAL		1001	100.00 %	5.47 %	69.85

Note: Cover values based on 6 line transects, 30.5 meters (100 feet) each.

Density values based on 6 quadrats of 1 square meter each.

*Species planted 1977

VEGETATION SUCCESS
DUMPS O, P, P1, P2

Date Relained: 1977
Date of Analysis: September, 1981

<u>Common Name</u>	<u>Scientific Name</u>	<u>Total Cover (cm)</u>	<u>Botanical Composition %</u>	<u>Basal Area Cover %</u>	<u>Density Plants/M²</u>
* Blue grama	Bouteloua gracilis	292	49.58	2.39	5.75
* Crested wheatgrass	Agropyron cristatum	94	15.95	0.77	7.50
* Alkali sacaton	Sporobolus airoides	72	12.22	0.59	3.25
* Indian ricegrass	Oryzopsis hymenoides	11	1.87	0.09	0.25
* Sand dropseed	Sporobolus cryptandrus	---	---	---	1.00
* Fourwing saltbush	Atriplex canescens	28	4.75	0.23	3.50
Red threeawn	Aristida longiseta	22	3.74	0.18	2.50
Annual forbs		53	9.00	0.43	58.00
Broom snakeweed	Xanthocephalum sarothrae	17	2.89	0.14	7.00
<hr/> TOTAL		589	100.00 %	4.82 %	88.75

Note: Cover values based on 4 line transects, 30.5 meters (100 feet) each.

Density values based on 4 quadrats of 1 square meter each.

*Species planted 1977

VEGETATION SUCCESS
DUMP T

Date Reclaimed: 1979
Date of Analysis: September, 1981

<u>Common Name</u>	<u>Scientific Name</u>	<u>Total Cover (cm)</u>	<u>Botanical Composition %</u>	<u>Basal Area Cover %</u>	<u>Density Plants/M²</u>
* Blue grama	Bouteloua gracilis	64	17.30	0.70	4.00
* Sideoats grama	Bouteloua curtipendula	168	45.40	1.84	5.67
* Indian ricegrass	Oryzopsis hymenoides	22	5.95	0.24	1.00
* Weeping lovegrass	Eragrostis curvula	24	6.49	0.26	—
* Crested wheatgrass	Agropyron cristatum	—	—	—	0.33
* Fourwing saltbush	Atriplex canescens	28	7.57	0.31	2.00
* Plains bristlegrass	Setaria macrostachya	18	4.86	0.20	1.33
* Quail bush	Atriplex lentiformis	1	0.27	0.01	—
Annual forbs		45	12.16	0.49	62.33
<hr/>					
TOTAL		370	100.00 %	4.05 %	76.66

Note: Cover values based on 3 line transects, 30.5 meters (100 feet) each.

Density values based on 3 quadrats of 1 square meter each.

*Species planted in 1979

VEGETATION SUCCESS
DUMPS X, I, & Y2

Date Reclaimed: 1979
Date of Analysis: September, 1981

<u>Common Name</u>	<u>Scientific Name</u>	<u>Total Cover (cm)</u>	<u>Botanical Composition %</u>	<u>Basal Area Cover %</u>	<u>Density Plants/M²</u>
* Blue grama	Bouteloua gracilis	36	7.56	0.39	1.00
* Sideoats grama	Bouteloua curtipendula	139	29.20	1.52	11.00
* Indian ricegrass	Oryzopsis hymenoides	21	4.41	0.23	1.00
* Weeping lovegrass	Eragrostis curvula	149	31.30	1.63	7.00
* Sand dropseed	Sporobolus cryptandrus	7	1.47	0.08	—
* Clover	Melilotus spp.	1	0.21	0.01	0.67
* Fourwing saltbush	Atriplex canescens	49	10.30	0.54	2.33
Annual forbs		74	15.55	0.81	44.00
<hr/>					
TOTAL		476	100.00 %	5.21 %	67.00

Data based on three (3) line transects (100 ft. long each) and three (3), one square meter plots.

*Species planted in 1979

VEGETATION SUCCESS
DUMP L

Date Reclaimed: 1979
Date of Analysis: September, 1981

<u>Common Name</u>	<u>Scientific Name</u>	<u>Total Cover (cm)</u>	<u>Botanical Composition %</u>	<u>Basal Area Cover %</u>	<u>Density Plants/M²</u>
* Blue grama	Bouteloua gracilis	30	19.48	0.33	4.75
* Sideoats grama	Bouteloua curtipendula	14	9.09	0.15	9.50
* Western wheatgrass	Agropyron smithii	7	4.55	0.08	6.75
* Weeping lovegrass	Eragrostis curvula	3	1.95	0.03	---
* Crested wheatgrass	Agropyron cristatum	13	8.44	0.14	1.00
* Fourwing saltbush	Atriplex canescens	57	37.01	0.62	8.50
* Indian ricegrass	Oryzopsis hymenoides	---	---	---	1.50
* Alkali sacaton	Sporobolus airoides	---	---	---	0.25
Annual forbs		30	19.48	0.33	386.50
<hr/>					
TOTAL		154	100.00 %	1.68 %	418.75

Note: Cover values based on 3 line transects, 30.5 meters (100 feet) each.

Density values based on 4 quadrats of 1 square meter each.

*Species planted 1979

VEGETATION SUCCESS
DUMP K

Date Reclaimed: 1979
Date of Analysis: September, 1981

<u>Common Name</u>	<u>Scientific Name</u>	<u>Total Cover (cm)</u>	<u>Botanical Composition %</u>	<u>Basal Area Cover %</u>	<u>Density Plants/M²</u>
* Blue grama	Bouteloua gracilis	36	18.31	0.39	4.67
* Sideoats grama	Bouteloua curtipendula	63	32.04	0.69	15.33
* Western wheatgrass	Agropyron smithii	20	10.17	0.22	9.33
* Indian ricegrass	Oryzopsis hymenoides	10	5.09	0.11	3.00
* Sand dropseed	Sporobolus airoides	1	0.51	0.01	----
* Crested wheatgrass	Agropyron cristatum	2	1.02	0.02	1.00
* Weeping lovegrass	Eragrostis Curvula	---	---	---	1.00
* Fourwing saltbush	Atriplex canescens	10	5.09	0.11	4.33
Bottlebrush squirreltail	Sitanion hystrix	4	2.03	0.04	----
Annual forbs		50.6	25.74	0.55	655.66
<hr/>					
TOTAL		196.6	100.00 %	2.14 %	694.32

Note: Cover values based on 3 line transects, 30.5 meters (100 feet) each.

Density values based on 4 quadrats of 1 square meter each.

*Species planted 1979

JACKPILE/PAGUATE MINE
COMPARISON TO CONTROL SITES
1981

<u>Basal Cover Site</u>	<u>% Cover</u>	<u>% of Control Site Average</u>
C, D, E	4.38	71
F, G	5.47	89
O, P, P1, P2	4.82	78
X, I, Y2	5.21	85
T	4.05	66
L	1.68	27
K	2.14	35
Control Site Average	6.16	100

<u>Density Site</u>	<u>Plants/M²</u>	<u>% of Control Site Average</u>
C, D, E	55.66	69
F, G	69.85	86
O, P, P1, P2	88.75	110
X, I, Y2	67.00	84
T	76.66	95
L	418.75	518*
K	694.32	859*
Control Site Average	80.83	100

*Figures high due to the great number of annual forbs.